

STEM Professional Development Evaluation Data Collection

Level	Component	Item Assessed	Tools Used to Collect Data
1	Participants' Reactions	Teacher attitudes and beliefs, PD leadership/delivery team experiences	Questionnaires, interviews, focus groups
2	Participants' Learning	Teacher content knowledge, Teacher STEM pedagogy and skills	Pre/post content assessment, classroom observations (pre, during and post PD), teacher interviews
3	Organization Support and Change	PD leadership/delivery team – PD format/schedule/activities, engagement of community/business stakeholders and others, sustainability plan	Interviews, focus groups, program materials, records, site visits
4	Participants' Use of New Knowledge and Skills	Degree and quality of implementation	Classroom observations (pre, during, and post PD), interviews
5	Student Learning Outcomes	Student achievement, dispositions, student experiences	Assessment data, questionnaires, focus groups

Evaluation Purpose

The purpose of the external evaluation of the TN STEM Professional Development programs is to collect evidence of the success of funded programs to support the high-quality investment of funds into the systemic enhancement of STEM programs across the state. This coordinated evaluation will include intensive data collection to ensure the ability to document progress in a rigorous, research-based manner to position THEC and the state strongly to apply for and secure future funding of STEM programs.

While we want to build a very strong and clear picture of best practice across the state in STEM enabled through these programs, we also recognize the need to protect individual participant identities. Our evaluation is focused on painting the overall picture of what took place and came out of individual programs. We will not be reporting on an individual teacher basis. Therefore, all teachers will receive an assigned pseudonym (fictitious name and ID code) that will be used for submission of all data (observations, surveys, etc.). We want to reassure teachers that no one

from their school or district will have access to any of their data collected for this program and it will in no way be used in any manner outside of the evaluation of this overall funding program.

Teacher Surveys

All participating teachers in funded programs will be required to complete two surveys pre and post program completion.

The first survey is the Survey of Enacted Curriculum (*Attachment 1_A and 1_B*) that is heavily focused on teacher content knowledge, as well as what content they teach across the school year.

The second survey is the Local Systemic Change Through Teacher Enhancement survey (*Attachments 2A-2D*). This survey is focused more on teacher pedagogy and support for practice. Both surveys will be completed using Survey Monkey according to the individual program schedule.

Program Directors will give participating teachers time within their programs for completion of these instruments so no additional time will be required from participants outside of the program.

The pre-survey must be completed by the end of the first day of the program and the post-survey must be completed within two weeks of the completion of the program.

Teacher Observations

All participating teachers in funded programs will be required to complete three self-selected recorded class periods of teaching (science or math). The first recorded lesson must take place prior to beginning the program and be submitted by October 1, 2011. The second recorded lesson must take place by the mid-point of the program (or before September 1, 2012) and the third recorded lesson must be completed by December 1, 2012.

Recorded lessons are preferred in digital format that can be uploaded online (support will be given for this) or burned to a DVD and submitted. The lesson should focus on the teacher – not on individual students and it is recommended to position the camera in the back of the classroom with a wide-angle view of the entire room. In other words, the teacher can set up the camera without the need for a second person to complete the taping. This will capture the teacher as he/she moves about the room during the lesson. It is expected that in the lesson students will be caught in the wide-angle shot – however we will not identify any students or focus on them other than their interaction with the teacher. We can provide permission forms for the teacher to send home if there is not already an existing permission for students within the school to be photographed/recorded. The videos will only be viewed by the external evaluator and destroyed after the observation form is completed.

There will be additional support available for completing the recorded lessons. The external evaluator and/or program director will work with the teacher to ensure access to equipment and support for uploading or submitting video.

The implementation of program pedagogical content knowledge in the classroom is essential in the documentation of program effectiveness.

Teacher focus group

The external evaluator will ask the program directors to solicit volunteers for one focus group that will take place near the end of the program where the participants will discuss their experiences in the program and suggestions for scaling up the program to make it available to other teachers across the state. We hope that four or five participants from each program will be a part of this 30-minute session that will be conducted either on site or by Skype.

Teacher interviews

The external evaluator will provide the interview protocol to the project directors who will conduct individual two teacher interviews. One will take place prior to completion of eight hours of the program and the second will take place at the end of the program (by Dec. 1, 2012). This will be approximately a 20-minute interview that will ask teachers about how their classroom practice, comfort with their discipline, and beliefs about how their subject should be taught. The interview will be recorded using a digital recorder. Teachers will use their ID code and will not identify themselves.

Teacher content assessments

The program director will be required to develop a 25-item pre/post content assessment focused on the content of the program (i.e. chemistry). The assessment will be provided to the external evaluator for input prior to use. Results by teacher ID will be submitted after completion of each (pre/post) by item with the answer chosen for each. This will help identify trends in content knowledge by item as well as the overall percentage correct. The evaluator will work with individual programs to establish a schedule for administration and reporting.

Program Director/Staff Interviews

The external evaluator will interview the program director and/or staff regarding their plans for the program (pre) and experience with implementing the program (post) by Skype. The schedule will be established individually with each program.

Collection of Program Materials

All essential program materials that participants receive will be archived for use by the external evaluator, as well as the STEM network, warehouse, and THEC. This will include all agendas, participant materials, etc. There will be an online shared folder set up for collection of these documents and a schedule for submission established with individual programs.

Site Visit

Some site visits will be conducted with selected programs. The external evaluator will schedule these visits with programs.

Student Assessment Data

The student achievement data for participating teachers will be provided to the external evaluator.

Student questionnaire

There will be a questionnaire for all participants' students to complete prior to the program and at the end of the program to determine impact of new and enhanced practices on student experiences and attitudes. This survey will be administered using Survey Monkey during a window of time established individually with each program.

Student focus groups

The external evaluator will work with the program director to identify participants who are willing to send home permission forms (likely only one or two per program) to request parent permission to participate in a focus group. Five to ten students total will be selected for each focus group session. Each session will ask students to reflect on their experiences in science/math that year. The focus groups will take place in November 2012.